

Serial No.: 10/649,910
Amdt. dated 15 August 2007
Reply to Office Action of 29 June 2007

Amendments to the Drawings:

The attached sheets of drawings include a replacement sheets for FIGS. 1-12 originally filed in the application. No new matter has been added.

Attachment: Seven (7) replacement sheets with FIGS. 1-12

Remarks

As noted previously, Applicant appreciates the Examiner's thorough examination of the subject application.

Claims 1-22 are pending in the application and claims. Claim 1-20 have been withdrawn in response to a previous restriction requirement. In the Office Action mailed 29 June 2007 for the subject application, claims 21 and 22 were rejected, under various statutory grounds as described in further detail below.

By the present amendment, seven replacement sheets submitted for the original drawings (FIGS. 1-12) filed in the application. Further, claims 1, 11, 21, and 22 are amended herein, while claims 9 and 19 have been canceled. Claims 1 and 21 have been amended to clarify the second range of wavelengths of near infrared light. No new matter has been added.

The Applicant requests reconsideration and further examination of the subject application based on the foregoing amendments and the following remarks.

Objections to the Drawings

The Examiner objected to the drawings on multiple grounds: (i) because they contain extraneous marks, blurred indicia, and poor lines quality; and (ii) because the claimed limitation of "first radiation and said second radiation generating a chromophore" must be shown or the feature(s) canceled from the claims.

In response, Applicant has submitted seven replacement sheets for the drawings in the application as filed (FIGS. 1-12); the replacement sheets include figures with corrected line quality in compliance with 37 CFR § 1.121(d). Regarding the objection that claimed limitations are not shown in the drawings, Applicant submits that the amendment to the claims herein renders this rejection as moot.

Claim Rejection – 35 U.S.C. § 112

Claims 21 and 22 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. More specifically, the Examiner stated that the originally filed description was silent on the manner in which the first radiation and the second radiation generate a chromophore.

By the present amendment, the term “generating a chromophore” has been replaced with “targeting a chromophore”. This claim amendment is believed to cure the rejection of claim 21 and 22 under 35 U.S.C. § 112.

Claim Rejections – 35 U.S.C. § 103

In the Office Action, claims 21 and 22 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,951,663 to L'Esperance, Jr. and “Characterization of Photodamage to Escherichia Coli in Optical Traps,” Biophy J., November 1999, pp 2865-2863, Vol. 77 (“Neuman”). Applicant respectfully traverses the rejection and requests reconsideration for the following reasons.

For a rejection under 35 U.S.C. § 103(a), the cited reference(s) must teach or suggest each and every limitation in the claim(s) as issue. A further requirement necessary for a rejection under 35 U.S.C. § 103(a) is that proper motivation must exist to combine or modify the reference(s) in the way proposed by the Examiner. As both requirements are not met in this situation, Applicant respectfully traverses the rejection and requests reconsideration.

Independent claim 21 as amended (representative of the independent claims subject to the rejection) recites the following:

21. A process for destroying bacteria in a bacterial locale, said process comprising:

- (a) energizing a laser to cause the selective emission of first radiation in a first wavelength range of 865nm to 875nm and the selective emission of second radiation at a second wavelength range of 925 nm to 935 nm;
- (b) establishing a path for the transmission of said first radiation and said second radiation from said laser oscillator sub-system; and
- (c) enabling delivery of said first radiation and said second radiation from said laser oscillator sub-system through said optical channel to the site of said bacterial locale;
- (d) said first radiation and said second radiation targeting a chromophore at said bacterial locale and cooperating with said chromophore to destroy bacteria in said bacterial locale.

[Emphasis added]

Thus, Applicant claims use of a laser system producing near infrared radiation at two specific and relatively narrow wavelength ranges, i.e., “a laser to cause the selective emission of first radiation in a first wavelength range of 865nm to 875nm and the selective emission of second radiation at a second wavelength range of 925 nm to 935 nm.”

In contrast, L’Esperance teaches generally the use of a multi-beam laser system for application to an area of prospective surgical invasion of living tissue. Regarding the light produced by such a multi-beam laser system, L’Esperance teaches that such light (“irradiation” [sic]): “(a) is of low intensity a tissue impingement and (b) is preferably in the visible or in the infrared.” One skilled in the art would understand that this broad and general description of expansive portions of the electromagnetic spectrum fails to comprehend the significance, criticality, and unexpected results of the Applicant’s claimed wavelengths and ranges, i.e., (i) 870nm and 930nm, and (ii) 865nm-875nm and 925nm-935nm. Moreover, L’Esperance characterizes its teaching as being directed to:

laser-aseptic phototherapy, for enhanced sterilization of an area of prospective surgical invasion of living tissue, by first administering,

intravenously, orally or otherwise as appropriate, a photosensitizing agent having the property, photosensitizing agent having the property, in the course of an acceptable period of time, of selective concentrated absorption in bacteria and other microorganisms such as those which exist at depth in hair follicles, and then, following lapse of the time period, applying laser irradiation to the area of prospective surgery using a wavelength and power density selected for absorptive response by the photosensitive agent, whereby microorganisms are destroyed at and beneath the irradiated area.

(L'Esperance, Abstract) [Emphasis added]

Thus, L'Esperance fails to comprehend the uniqueness of the Applicant's claimed wavelengths and ranges, i.e., (i) 870nm and 930nm, and (ii) 865nm-875nm and 925nm-935nm, and does not teach or suggest the simultaneous use of such specific and narrow wavelength ranges.

For the foregoing reasons, L'Esperance fails to teach or suggest at least one limitation of claims 21 and 22, e.g., energizing a laser to cause the selective emission of first radiation in a first wavelength range of 865nm to 875nm and the selective emission of second radiation at a second wavelength range of 925 nm to 935 nm.

The secondary reference, Neuman, teaches the use of various near infrared (NIR) wavelengths used in the study of the deleterious effects on bacteria isolated by so-called optical traps. The reference explores a range the use of a range of NIR wavelength at extremely high power densities, e.g., on the order of 1×10^7 W/cm², as typically used in such optical traps.

Like L'Esperance, Neuman also fails to teach or suggest at least one limitation of claim 21 and 22, e.g., energizing a laser to cause the selective emission of first radiation in a first wavelength range of 865nm to 875nm and the selective emission of second radiation at a second wavelength range of 925 nm to 935 nm.

Not only does Neuman fail to teach each and every limitation of the claims under rejection but the reference also teaches away from claims 21 and 22 (as well as the withdrawn

claims), and thus there is no motivation to modify the references as proposed by the Examiner. This is so as the Neuman reference actually teaches that the region between 870 nm and 910 “is particularly damaging and should be avoided, especially for work in vivo” and that 930 nm was “the most damaging wavelength” studied. See, e.g., Neuman, p. 2862 and p. 2859.

Thus, as L’Esperance and Neuman fails to teach each and every limitation of claims 21 and 22 and further because at least one of these references teaches away from the Examiner’s proposed modification, the cited references of L’Esperance and Neuman is an improper basis for a rejection of claims 21 and 22 under 35 U.S.C. § 103(a). Applicant requests the removal of the rejection accordingly.

Conclusion

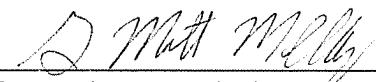
For the reasons stated above, Applicant respectfully submits that all claims under consideration in the pending application are in condition for allowance and timely Notice of Allowance is requested accordingly.

Please charge any fees which may be due, or credit any overpayment, to Deposit Account Number 50-1133. The Examiner is invited to telephone the undersigned attorney to discuss any aspect of this application or this response.

Respectfully submitted,

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